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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WANG, JACK K

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/596,407	Applicant(s) MURAKAMI ET AL.	
	Examiner JACK WANG	Art Unit 2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/12/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

Claim Objections

1. Claim 11 is objected to because of the following informalities: improper method claim dependent on the apparatus claim. Appropriate correction is required.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Brown, JR. (Pub # US 2004/0017289 A1).

Consider claim 1, Brown, JR. clearly shown and disclose a device for detecting an abnormality (pressure leakage, low inflation conditions, or excessive temperature) of a rotating body (tire) characterized in that the improvement comprises [0010 lines 1-5]: means for measuring various physical quantities (pressure and temperatures) of the rotating body (tire) in rotation [0010 lines 19-22]; means for extracting a signal which is synchronized (plot for multiple inflation pressures) with the rotation of rotating body (tire) by the data measured by the measuring means [0010 lines 8-11]; means for determining a condition (compared against the pressure warning threshold(s)) of the rotating body (tire) from the signal extracted by the extracting means; and abnormality warning means for giving warning of abnormality when the determining means determine that the condition of the rotating body is abnormal (fall below the warning threshold) [0010 lines 22-26]; wherein the extracting means comprise an adaptive

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digital filter [0012 lines 3-6] which extracts a signal synchronized with the rotation and picks out a signal having no correlation with the rotation by means of a data measured by the measuring means and a signal synchronized with the rotation extracted by the extracting means, and adapts the adaptive digital filter by means of the signal picked out and having no correlation with the rotation [0010 lines 19-26].

Consider claim 2, Brown, JR. clearly shown and disclose the device for detecting an abnormality of a rotating body, wherein the various physical quantities of the rotating body measured by the measuring means is a signal correlated with vibration, sound, rotating number or rotation [0006 lines 3-9].

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 11 is rejected under 35 U.S.C. 102(e) as being anticipated by Brusarosco et al.
(Pub # US 2007/0010928 A1).

Consider claim 11, Brusarosco et al. clearly shown and disclose a method for detecting an abnormality of a rotating body (tire), characterized in that, by means of the device for detecting an abnormality of a rotating body (tire), it extracts a signal synchronized with the rotation of the rotating body from the various physical quantities (amplitude, rotational speed, and inflation

pressure) [0017] of the rotating body in rotation, and detects the abnormality of the rotating body by using the extracted signal [0019].

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown, JR. (Pub # US 2004/0017289 A1) as applied to claim 1 above, and further in view of Brusarosco et al. (Pub # US 2007/0010928 A1).

Consider claim 3, Brown, JR. teaches similar invention except the device for detecting an abnormality of a rotating body, wherein a delayed data of the data measured by the measuring means is used in extracting a signal synchronized with the rotation in the extracting means.

In the same field of endeavor, Brusarosco et al. teaches the device for detecting an abnormality of a rotating body (tire), wherein a delayed data of the data measured by the measuring means is used in extracting a signal synchronized (performed in real time) with the rotation in the extracting means [0019] for the benefit of improving the data integrity and preventing the false alarm.

Therefore, it would have been obvious to a person of ordinary skill in the art at time the invention was made to include a delayed data of the data measured by the measuring means is used in extracting a signal synchronized with the rotation in the extracting means as shown in

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Brusarosco et al., in Brown, JR. device for the benefit of improving the data integrity and preventing the false alarm.

Consider claim 4, Brown, JR. teaches similar invention except the device for detecting an abnormality of a rotating body, wherein the data delay time corresponds to one rotation time of the rotating body.

In the same field of endeavor, Brusarosco et al. teaches the data delay time corresponds to one rotation time of the rotating body [0008 lines 14-20] for the benefit of improving the data integrity and preventing the false alarm.

Therefore, it would have been obvious to a person of ordinary skill in the art at time the invention was made to include the data delay time corresponds to one rotation time of the rotating body as shown in Brusarosco et al., in Brown, JR. device for the benefit of improving the data integrity and preventing the false alarm.

Consider claim 5, Brown, JR. teaches similar invention except the device for detecting an abnormality of a rotating body, wherein a delay circuit to delay the data is provided on a signal line between an input portion of data from the measuring means and an adaptive digital filter.

In the same field of endeavor, Brusarosco et al. teaches the device, wherein a delay circuit to delay the data is provided on a signal line between an input portion of data from the measuring means and an adaptive digital (low-pass) filter [0020] for the benefit of improving data integrity.

Therefore, it would have been obvious to a person of ordinary skill in the art at time the invention was made to include a delay circuit to delay the data is provided on a signal line

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between an input portion of data from the measuring means and an adaptive digital filter as shown in Brusarosco et al., in Brown, JR. device for the benefit of improving data integrity.

Consider claim 6, Brown, JR. teaches a similar invention except the device for detecting an abnormality of a rotating body, wherein a delay circuit to delay the data is provided on a signal line between an input portion of data from the measuring means and a comparator to extract a signal having no correlation with the rotation.

In the same field of endeavor, Brusarosco et al. teaches the device, wherein a delay circuit to delay the data is provided on a signal line between an input portion of data from the measuring means and a comparator to extract a signal having no correlation with the rotation [0006] for the benefit of determining the tire load from tire deflection.

Therefore, it would have been obvious to a person of ordinary skill in the art at time the invention was made to include a delay circuit to delay the data is provided on a signal line between an input portion of data from the measuring means and a comparator to extract a signal having no correlation with the rotation as shown in Brusarosco et al., in Brown, JR. device for the benefit of determining the tire load from tire deflection.

Consider claim 7, Brown, JR. teaches similar invention except the device for detecting an abnormality of a rotating body, wherein an order component generated by calculating a rotating cycle from data of rotating information among the data measured by the measuring means is used in extracting a signal synchronized with the rotation in the extracting means.

In the same field of endeavor, Brusarosco et al. teaches the device, wherein an order component generated by calculating a rotating cycle from data of rotating information among the data measured by the measuring means is used in extracting a signal synchronized with the

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rotation in the extracting means [0007 lines 6-10] for the benefit of collecting data in various operational condition.

Therefore, it would have been obvious to a person of ordinary skill in the art at time the invention was made to include an order component generated by calculating a rotating cycle from data of rotating information among the data measured by the measuring means is used in extracting a signal synchronized with the rotation in the extracting means as shown in Brusarosco et al., in Brown, JR. device for the benefit of collecting data in various operational condition.

Consider claim 8, Brown, JR. teaches similar invention except the device for detecting an abnormality of a rotating body, wherein an order component generation circuit to generate the order component is provided on a signal line between an input portion of rotation information data from the measuring means and an adaptive digital filter.

In the same field of endeavor, Brusarosco et al. teaches the device, wherein an order component generation circuit to generate the order component is provided on a signal line between an input portion (32, Fig. 3) of rotation information data from the measuring means and an adaptive digital (low-pass) filter [0020] (included in the processing unit) (34, Fig. 3) [0079 lines 1-9] for the benefit of reducing the quantity of information sent out of the tire.

Therefore, it would have been obvious to a person of ordinary skill in the art at time the invention was made to include an order component generation circuit to generate the order component is provided on a signal line between an input portion of rotation information data from the measuring means and an adaptive digital filter as shown in Brusarosco et al., in Brown JR. device for the benefit of reducing the quantity of information sent out of the tire.

Consider claim 9, Brown, JR. teaches similar invention except the device for detecting an abnormality of a rotating body, wherein the data measured by the measuring means is sampled by a variable sampling in accordance with the data of rotating speed information of the data measured by the measuring means so as to make an apparent cycle constant in extracting a signal synchronized with the rotation in the extracting means.

In the same field of endeavor, Brusarosco et al. teaches the device, wherein the data measured by the measuring means is sampled by a variable sampling in accordance with the data of rotating speed information of the data measured by the measuring means so as to make an apparent cycle constant in extracting a signal synchronized with the rotation in the extracting means [0045-0048] for the benefit of providing data input for determining the tire load.

Therefore, it would have been obvious to a person of ordinary skill in the art at time the invention was made to include the data measured by the measuring means is sampled by a variable sampling in accordance with the data of rotating speed information of the data measured by the measuring means so as to make an apparent cycle constant in extracting a signal synchronized with the rotation in the extracting means as shown in Brusarosco et al., in Brown, JR. device for the benefit of providing data input for determining the tire load.

Consider claim 10, Brown, JR. teaches similar invention except the device for detecting an abnormality of a rotating body, wherein a variable sampling circuit to perform a variable sampling is provided on the input portion of data from the measuring means.

In the same field of endeavor, Brusarosco et al. teaches the device, wherein a variable sampling circuit to perform a variable sampling is provided on the input portion (measuring

device) (32, Fig. 3) of data from the measuring means [0079 lines 7-9] for the benefit of processing signal prior to data calculation.

Therefore, it would have been obvious to a person of ordinary skill in the art at time the invention was made to include a variable sampling circuit to perform a variable sampling is provided on the input portion of data from the measuring means as shown in Brusarosco et al., in Brown, JR. device for the benefit of processing signal prior to data calculation.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Giovanni (Pub # US 2005/0146424 A1) "System for transmitting a signal indicating the functioning condition of a tire".

b. Nowicki et al. (US Patent # 5,285,189) "Abnormal tire condition warning system".

c. Munch et al. (US Patent # 6,580,364 B1) "Apparatus and method for tracking an abnormal tire condition".

d. Naito et al. (US Patent # 6,450,020 B1) "Tire pressure warning device".

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACK WANG whose telephone number is (571)272-1938. The examiner can normally be reached on M-F 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffery Hofsass can be reached on 571-272-2981. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JKW/

/Jeff Hofsass/

Supervisory Patent Examiner, Art Unit 2612